Goals Handout for Aquidneck Island Watershed Plan- Proposed draft

Plan Purpose: Planning for the protection and restoration of water quality and aquatic habitats in the Aquidneck Island Watershed. (Planning area is the entire island, which is made up of a number of smaller watersheds. See attached map.)

Objective of Goal Statement Sheets: Obtain stakeholder input on the priority issues (Narrative statements are on the following pages)

List of Draft Goals, <u>in order by proposed priority</u>:

- Improve water quality for drinking water and for fish and wildlife habitat in all of the drinking water reservoirs on the Island (and their tributaries) which are impaired by excess phosphorus and total organic carbon
- Improve coastal water quality for swimming at areas frequently closed due to bacteria after storm events
- Eliminate the public health threat of contamination from untreated wastewater to shellfishing areas, which has caused permanent closures of this resource around Portsmouth
- Improve water quality for fish and wildlife habitat in the non-drinking water freshwater ponds, which are impaired by excess phosphorus
- Protect and restore freshwater wetlands, streams, and their buffers and floodplains for fish and wildlife habitat and drinking water quality, and as a resiliency strategy for riverine flooding and climate change impacts
- Protect and restore coastal wetlands and marsh migration areas for fish and wildlife habitat and as a resiliency strategy for coastal flooding, sea level rise, and climate change
- Others?

Goal: Improve water quality for drinking water and for fish and wildlife habitat in all of the drinking water reservoirs on the Island (and their tributaries) which are impaired by excess nutrients (phosphorus and total organic carbon)

Narrative: (draft narrative, awaiting TMDL to refine details)

Excess Phosphorus in fresh waterbodies fuels algae growth. Algae blooms are a threat to the aquatic ecosystem which can harm fish and other aquatic life. Algae blooms are observed in all 7 of the drinking water reservoirs on the Island, and contribute to high levels of organic carbon in the water. Organic carbon, when present during the standard drinking water treatment process, creates a harmful byproduct which must then also be treated, driving up costs. Nitrogen levels in the reservoirs are also high and are potentially linked to cyanobacteria blooms (aka 'blue-green algae,' potentially toxic), warranting an additional public health concern.

Causes/Sources/Threats:

- Stormwater runoff carrying:
    - fertilizer
    - eroding soils (sediment)
    - pet and animal waste
    - combustion emissions
- waterfowl (nuisance geese congregate on reservoir banks, open lawn areas, and in the reservoirs)
- wastewater
    - septic systems
    - illicit connections of wastewater to storm drains
    - cracked/ leaking sewer pipes (no longer a potential source due to further investigation and sewer system improvements)
- Internal cycling (phosphorus that enters the ponds remains in the bottom sediment and recirculates back into the water column where it continues to affect the habitat)

Goal: Improve coastal water quality for swimming at areas frequently closed due to bacteria after storm events

Narrative:

Some designated swimming areas around the Island must be periodically closed to swimming, because they exceed the water quality public health safety standards for bacteria (usually following a stormwater event?). (There are also private beach areas that the State does not test).

Public areas of frequent closures are:

- Easton's Beach and Atlantic Beach Club
- Third Beach and Peabody's
- Fort Adams and Kings Park beaches
- Bailey's and Hazard beaches

Where does the bacteria come from?
Causes/Sources/Threats:

- stormwater runoff carrying:
    - pet waste
    - wildlife/ waterfowl waste
- wastewater
    - combined sewer and stormdrain pipe overflows (CSO's) (Newport)
    - inflow and infiltration induced overflows to manholes or pump stations
    - cracked/ leaking sewer pipes (Middletown, Newport)
    - illicit connections to stormdrains
    - failing septic systems (any not connected to sewer?)

Goal: Eliminate the public health threat of contamination from untreated wastewater to shellfishing areas, which has caused permanent closures of this resource around Portsmouth.

Narrative:

Some designated shellfishing areas around the Island are permanently closed to shellfishing because the water quality is threatened by wastewater discharges and leakages. Untreated wastewater escaping into the environment from any source is prohibited and must be addressed.

These areas are around the northern end of Portsmouth at densely developed areas dependent on on-site septic systems.

Causes/Sources/Threats:

- wastewater
    - failing and substandard septic systems
    - illicit connections of wastewater to stormdrains
    - [the primary threat around Portsmouth Cove, Portsmouth Park, and Island Park identified in the Sakonnet River – Portsmouth Park and The Cove – Island Park TMDL (2005) are from observed high bacteria levels from pipes and groundwater seepages, and from a history of septic system problems in the area. A swimming advisory is also in place at the beaches in this area due to this public health threat.]
    - [the primary sources around Common Fence Point identified in the Mt. Hope Bay TMDL (2010) are wastewater treatment plants in Massachusetts which discharge into Mt. Hope Bay. However, this area also has a high density of old septic systems close to the coast, which had a history of failed systems and which was recommended to be sewered in the near future at that time, but which did not happen.]
- pet waste could also be entering the water where high bacteria has been observed
- (wildlife/ waterfowl -any places where geese are a problem in this area?)
- (Also, Founder's Brook, which flows into this shellfish growing area, is impaired due to bacteria, which may or may not be a contributing source to Mt. Hope Bay)

Goal: Improve water quality for fish and wildlife habitat in the non-drinking water freshwater ponds, which are impaired by excess phosphorus

Narrative: Four freshwater ponds on the island are listed as impaired for fish and wildlife habitat due to excess phosphorus. Excess phosphorus can cause algae blooms which can lead to low oxygen conditions, posing a threat to fish and other aquatic life. Additionally, some types of blue-green algae produce a toxin, which is harmful to humans and pets, which is of growing concern.

Affected waterbodies: the two Melville Ponds in Portsmouth, and Lily Pond and Almy Pond in Newport.

Causes/Sources/Threats:

- Stormwater runoff : (includes lawn watering and irrigation)
    - Pet waste
    - Fertilizer (lawns)
    - Waterfowl/wild animal and bird waste (direct deposits in ponds by wading waterfowl and land deposits washed in stormwater runoff or lawn watering)
    - Eroding sediments (Phosphorus binds to sediment and travels with it)
    - Vehicle exhaust and combustion of fossil fuels
- Wastewater: leaking sewer lines, failing septic systems, illicit connections to storm drains (don't know if any exist around Melville ponds- need to check)
- Recirculation of excess phosphorus from pond bottom sediment

Goal: Protect and restore freshwater wetlands, streams, and their buffers and floodplains for fish and wildlife habitat and drinking water quality, and as a resiliency strategy for riverine flooding and climate change impacts.

Narrative: Freshwater wetlands, along with their protective buffers, provide significant and economically valuable contributions to clean water, flood protection, recreation, scenic beauty, and wildlife habitat. They provide critical habitat for many of Rhode Island's rare and threatened wildlife species; and are among the most productive natural systems regionally and worldwide. Wetlands also have a fairly significant role in storing excess carbon from the atmosphere.

Protection and restoration of naturally vegetated buffers around wetlands and along rivers, streams, and ponds provides multiple resource protection benefits, including resiliency from flooding and a changing climate, in addition to water quality protection and wildlife habitat. Naturally braided or meandering stream beds provide increased capacity, lag time, and drag, thereby reducing erosion and flood impacts down-stream.

Locations: island-wide (maybe prioritize by opportunity, public land, and ability to address down-stream impacted areas. What do stakeholders say?)

Causes/Sources/Threats: Stressors to Viability of Freshwater Wetlands, Riparian Buffers, and streams:

- Loss of vegetated buffer adjacent to waterbody or wetland (called a 'riparian' buffer)
- Degradation of freshwater wetlands and streams due to physical and hydrologic alteration (e.g., filling, vegetation removal, ditching, draining, or channelization)
- substandard stream crossings (i.e., undersized or perched road culverts)

Goal: Protect and restore coastal wetlands and marsh migration areas for fish and wildlife habitat and as a resiliency strategy for coastal flooding, sea level rise, and climate change.

Narrative: Coastal salt marshes, along with their protective buffers, provide significant and economically valuable contributions to clean water, flood and storm surge protection, recreation, scenic beauty, and wildlife habitat. They provide critical habitat for many of Rhode Island's rare and threatened wildlife species; and are among the most productive natural systems regionally and worldwide. In the coastal zone, high productivity supports the food chains that subsequently support the fish and shellfish industries. Coastal wetlands also have a fairly significant role in storing excess carbon from the atmosphere ('blue carbon').

Protection and restoration of naturally vegetated buffers around wetlands and coastal ponds provides multiple resource protection benefits, including resiliency from coastal flooding and a changing climate, in addition to water quality protection and wildlife habitat. As sea level rises, protecting and providing areas for salt marshes to naturally migrate inland can allow these resource areas to continue to provide critical services for us and for future generations.

Locations: (no specific areas identified yet. Get stakeholder input on priorities.)

Causes/Sources/Threats: Stressors to viability of coastal wetlands, buffers, and migration areas:

- Loss of vegetated buffer adjacent to waterbody or wetland (called a 'riparian' buffer)
- Degradation of salt marsh wetlands due to physical and hydrologic alteration (ditching/ tile drainage/ crossings)
- Degradation of coastal wetlands/marshes due to rate of sea level rise
- Degradation of coastal wetlands/marshes due to stormwater (freshwater) inundation (not sure how much of a problem this is in this watershed)
- Loss of coastal wetlands/marshes as sea level rises due to barriers to natural migration
- Damage to coastal wetlands/marshes due to boating (propeller and wake damage) (not sure how much of a problem in this watershed)

Map: Aquidneck Island Watershed Planning Area and Sub-watersheds